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CLAIM OF PRIORITY UNDER 35 USC §119
Examining Group 1614
Patent Application
Docket No. GJE-6757C1
Serial No. 10/617,847

David R. Saliwanchik



David R. Saliwanchik, Patent Attorney

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : 1614
Hazel Judith Bardsley, David Cavalla, Robert William Gristwood
Serial No. : 10/617,847
Filed : July 10, 2003
Conf. No. : 7988
For : New Therapeutic Use of 4-(2-Fluorophenyl)-6-Methyl-2-(1-Piperazinyl)Thieno[2,3-D]Pyrimidine

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CLAIM OF PRIORITY UNDER 35 USC §119

Sir:

The applicants in the above-identified patent application hereby reaffirm claim to the right of priority granted pursuant to 35 USC §119 based upon Great Britain Patent Application No. 0216027.3, filed July 10, 2002.

As required by the Statute, a certified copy of Great Britain Patent application No. 0216027.3 is being submitted herewith. The applicants request that the certified copy of the foreign priority application be made of record in the subject application pursuant to MPEP 201.14(b).

Respectfully submitted,

David R. Saliwanchik

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Patent Attorney

Registration No. 31,794

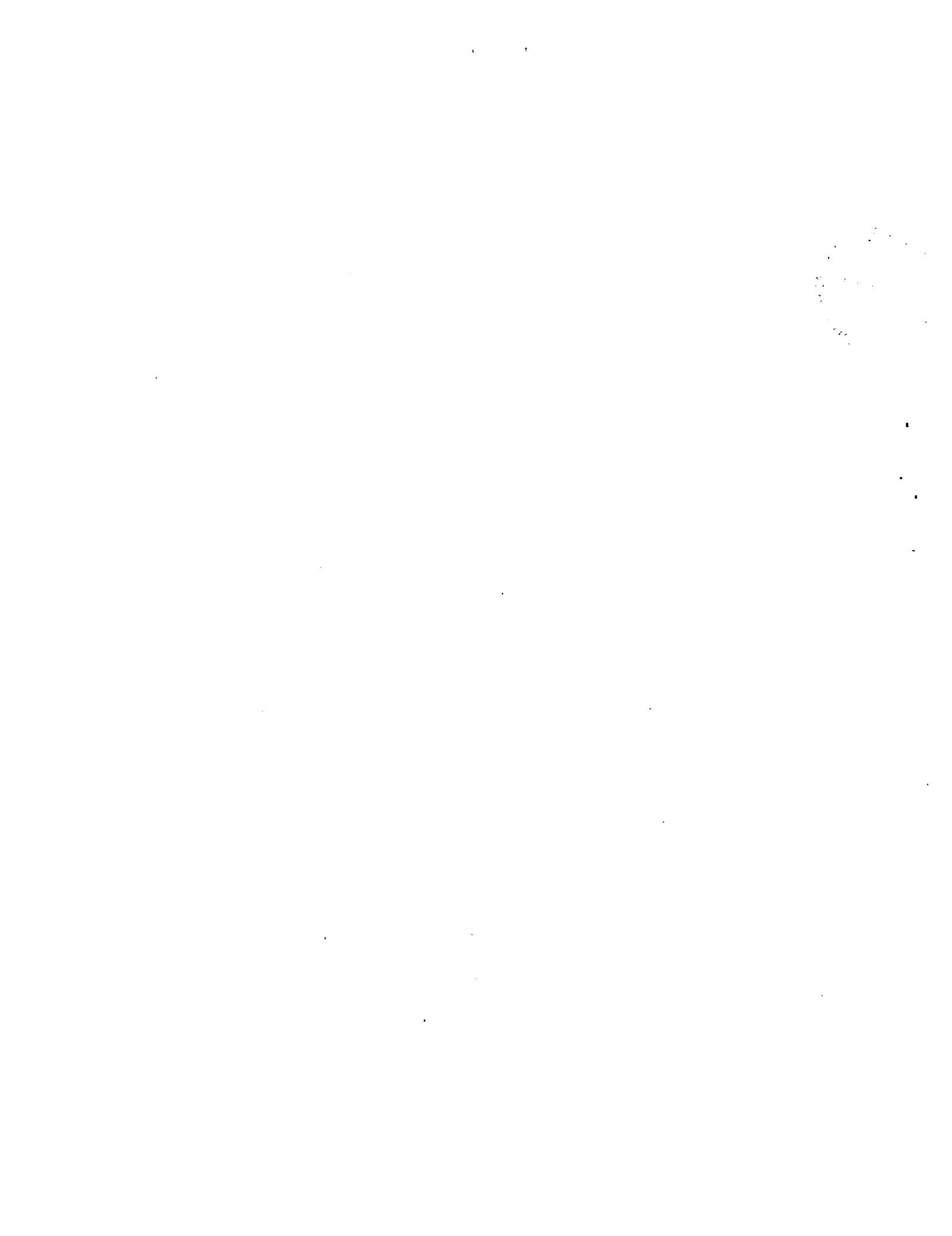
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Gainesville, FL 32606-6669

DRS/la

Attachment: Certified copy of priority document Great Britain Application No. 0216027.3





INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

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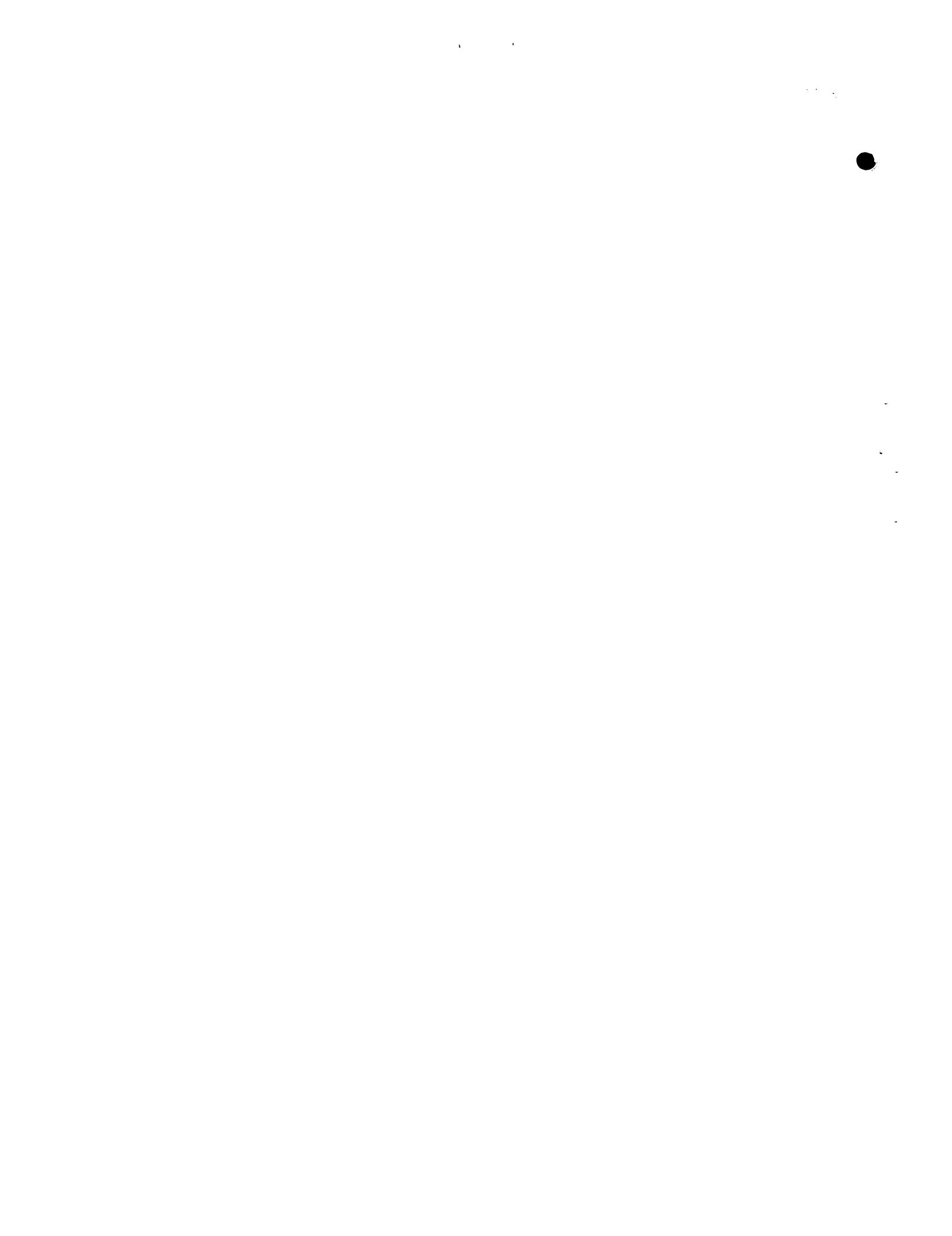
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[Large blacked-out redaction marks, appearing to be two large, jagged shapes.]

Signed

Dated 11 July 2003



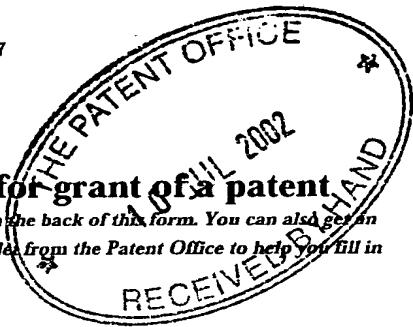
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11 JUL 02 E732472-3 002897
P01/7700 0.00-0216027.3

The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH**Request for grant of a patent**

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)



1. Your reference

REP06758GB

2. Patent application number

(The Patent Office will fill in this part)

0216027.3

3. Full name, address and postcode of the or of each applicant (*underline all surnames*)Arachnova Therapeutics Ltd.
95 Halkett Place
St. Helier
Jersey
JE1 1BXPatents ADP number (*if you know it*)

8137770001

If the applicant is a corporate body, give the country/state of its incorporation

Channel Islands

4. Title of the invention

NEW THERAPEUTIC USE

5. Name of your agent (*if you have one*)

Gill Jennings & Every

"Address for service" in the United Kingdom to which all correspondence should be sent (*including the postcode*)Broadgate House
7 Eldon Street
London
EC2M 7LHPatents ADP number (*if you know it*)

745002

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (*if you know it*) the or each application number

Country

Priority application number
(*if you know it*)Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (*Answer Yes if:*
a) *any applicant named in part 3 is not an inventor, or*
b) *there is an inventor who is not named as an applicant, or*
c) *any named applicant is a corporate body.*
See note (d))

YES

Patents Form 1/77

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Continuation sheets of this form

Description

2

Claim(s)

1

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)Request for preliminary examination and search (*Patents Form 9/77*)Request for substantive examination
(*Patents Form 10/77*)

NO

Any other documents
(please specify)

11. For the applicant

Gill Jennings & Every

I/We request the grant of a patent on the basis of this application.

Date

10 July 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

R E Perry

020 7377 1377

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After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

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NEW THERAPEUTIC USEField of the Invention

This invention relates to a new use for a known compound.

Background of the Invention

5 Functional bowel disorders are very common and include irritable bowel syndrome (IBS) and functional dyspepsia. IBS is the most common disorder diagnosed by gastroenterologists and one of the more common encountered in general practice. The overall prevalence rate is similar (approx 10%) in most industrialised countries. Some estimates of prevalence have reached 20%. The illness has a large economic
10 impact on health care use and indirect costs, chiefly through absenteeism.

IBS falls into two categories of equal prevalence, constipation, predominant or diarrhoea-predominant. The available treatments are generally poor.

A recent approach to treating diarrhoea-predominant IBS has involved the use
15 of alosetron. This drug works by blocking the 5HT-3 receptor. Other drugs with this mechanism of action have shown some limited activity in this disease, including ganisetron. Alosetron, although effective, was withdrawn due to side-effects on the colon.

A recent approach to treating constipation-predominant IBS involves agonising
20 the 5HT4 receptor. Two such agonists are in clinical trials, i.e. tegaserod and prucalopride. Other approaches being explored include using 5HT1 agonists such as buspirone.

Functional dyspepsia is characterised by impaired accommodation of the stomach to a meal and epigastric pain discomfort or pain. There is often early satiety and weight loss. The disorder is not well understood. Treatments include
25 antispasmodics and drugs affecting gut motility. Early studies suggest that buspirone and serotonin reuptake inhibitors may be useful.

(4-(2-Fluorophenyl)-6-methyl-2-(1-piperazinyl)thieno[2,3-D]pyrimidine monohydrate hydrochloride is known (see US-A-4695568) and has shown activity as an antidepressant. It has serotonin and noradrenergic reuptake blocking properties and
30 this is thought to be the mechanism for its action as an antidepressant. The compound also has 5HT-3 blocking activity.

Summary of the Invention

Surprisingly, it has been found that the known compound identified above has activity in the treatment of functional bowel disorders. Its combination of serotonin and
35 noradrenergic reuptake blockade and 5HT-3 receptor blockade has not previously been

clearly identified as being responsible for activity in functional bowel disorders. It will be appreciated that any suitable form of the active principle may be used, e.g. another salt form, or a prodrug or active metabolite.

Description of Preferred Embodiments

5 By means of this invention, functional bowel disorders can be treated, e.g. controlled or prevented. For this purpose, the active compound can be formulated in any suitable manner together with a conventional diluent or carrier. The active compound is preferably administered by the oral route; other suitable routes of administration include sublingual/buccal, transdermal, intramuscular, intranasal, rectal,
10 parenteral, subcutaneous, pulmonary and topical. An effective dose of the active agent will depend on the nature and degree of the complaint, the age and condition of the patient and other factors known to those skilled in the art. A typical daily dosage may be 0.1 mg to 5 g.

A pharmaceutical composition containing the active ingredient may be in the
15 form of a sublingual tablet or patch. Suitable compositions for oral use include tablets, troches, lozenges, aqueous or oily suspensions, dispersible powders or granules, emulsions, hard or soft capsules, syrups and elixirs. Suitable additives include sweetening agents, flavouring agents, colouring agents and preserving agents. Tablets contain the active ingredient in admixture with non-toxic pharmaceutically acceptable
20 excipients, e.g. inert diluents such as calcium carbonate, sodium carbonate, lactose, calcium phosphate or sodium phosphate; granulating and disintegrating agents, for example corn starch, or alginic acid; binding agents, for example starch, gelatin or acacia, and lubricating agents, for example magnesium stearate, stearic acid or talc. The tablets may be uncoated or they may be coated by known techniques to delay
25 disintegration and absorption in the gastrointestinal tract and thereby provide a sustained action over a longer period. For example, a time delay material such as glyceryl monostearate or glyceryl distearate may be employed. They may also be coated, to form osmotic therapeutic tablets for controlled release. Hard gelatin capsules may include an inert solid diluent, for example calcium carbonate, calcium
30 phosphate or kaolin; soft gelatin capsules may include water or an oil medium, for example peanut oil, liquid paraffin or olive oil.

CLAIMS

1. Use of (4-(2-fluorophenyl)-6-methyl-2-(1-piperazinyl)thieno[2,3-D]pyrimidine or a salt thereof for the manufacture of a medicament for the treatment of a functional bowel disorder.
- 5 2. Use according to claim 1, wherein the salt is the hydrochloride monohydrate.
3. Use according to claim 1 or claim 2, wherein the disorder is irritable bowel syndrome.

